

IDOT PTC Project Progress Update

5/14/02

Alan Polivka, Project Manager, TTCI

Agenda

- **Overview – PO**
- **Project Status and Schedule – SDI**
- **Safety Working Group – SE**
- **Summary/Q&A – PO**

PO – IDOT PTC Program Office (TTCI - Alan Polivka)

SDI – IDOT PTC System Developer/Integrator (Lockheed Martin team – Brian Caine)

SE – IDOT PTC System Engineer (ARINC/CANAC/Battelle – Ken Jackson)

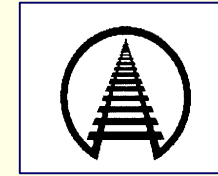
PTC Program Management



FRA



IDOT



AAR

NAJPTC Program Management Committee



ARINC
Team

Prime
Contractor

Systems
Engineer

Systems
Integrator

Other
Contractors

Lockheed Martin Team

Eastern Project,
Simulation Tools, etc.

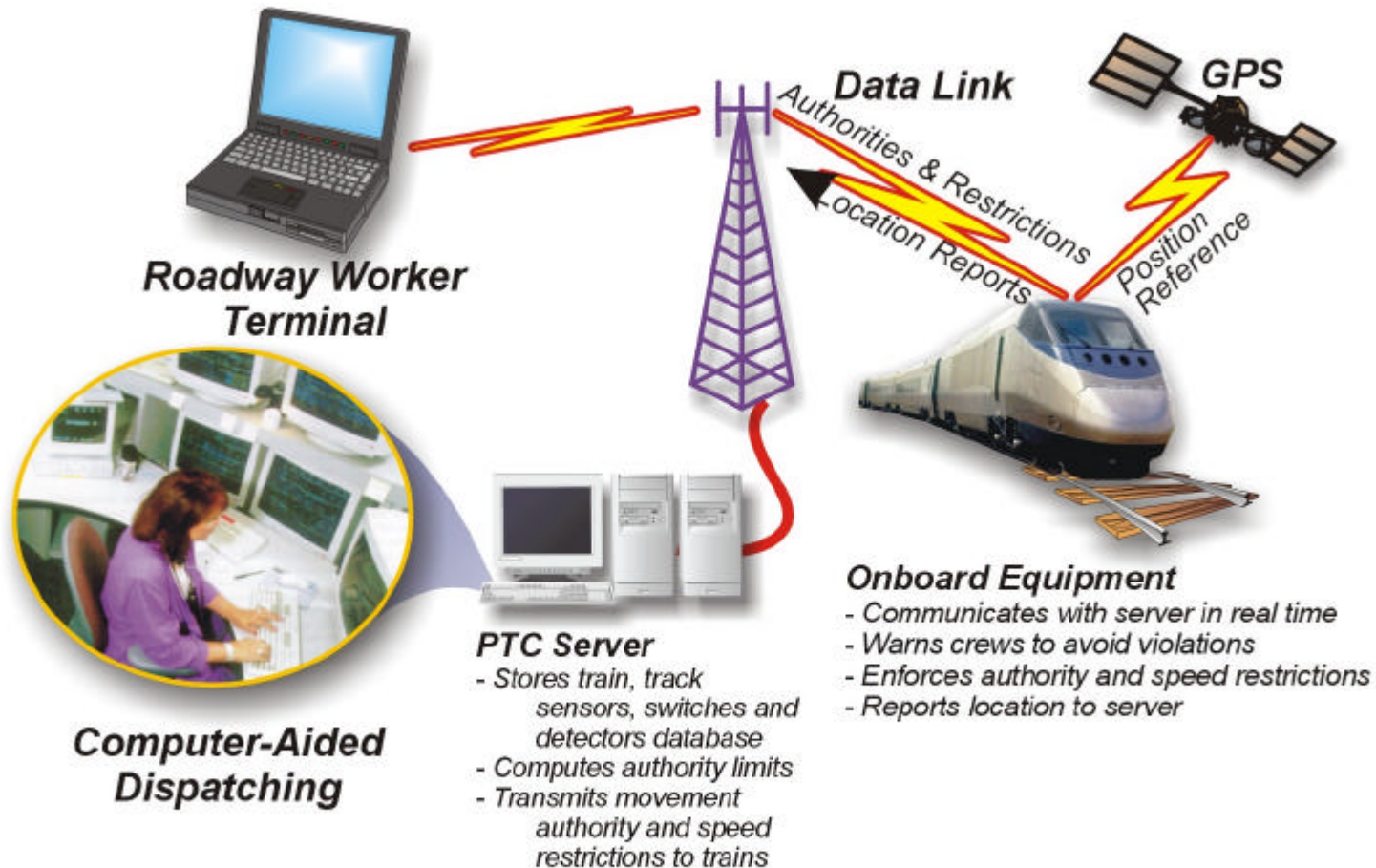
IDOT PTC Project Objectives

- **Demonstrate PTC **Safety Functionality****
 - Prevent Train to Train Collisions
 - Prevent Derailments due to Overspeed
 - Protect Roadway Workers Operating Within Limits of their Authorities
- **Demonstrate **Revenue-Ready** System for Operation of Passenger Trains **> 79 mph** Intermixed with Freight Trains**
- **Develop **Interoperability** Standards**
 - Transition between Different PTC or Other Train Control Systems at Track Speed

IDOT System Features

- **Warnings / Enforcement of Authorities and Speeds**
 - *Warnings provided in advance (except emergencies)*
 - *Enforcement is last resort*
- **Fine Resolution Train Tracking/Monitoring**
 - *Improved Asset Management*
- **Locomotive Activation of Crossing Warning Systems**
 - *Eliminates need to extend crossing track circuits for high speed operation*
- **Flexible Block**
 - *Permits closing up of trains - reduces freight train delay during overtakes*
 - *Potential to alleviate need for wayside signals*
- **Pacing**
 - *Improved network velocity, service reliability, fuel consumption, & congestion control*
- **Modular, Cost Effective Design**
 - *Non-Proprietary, Open Systems Architecture, Scalable*

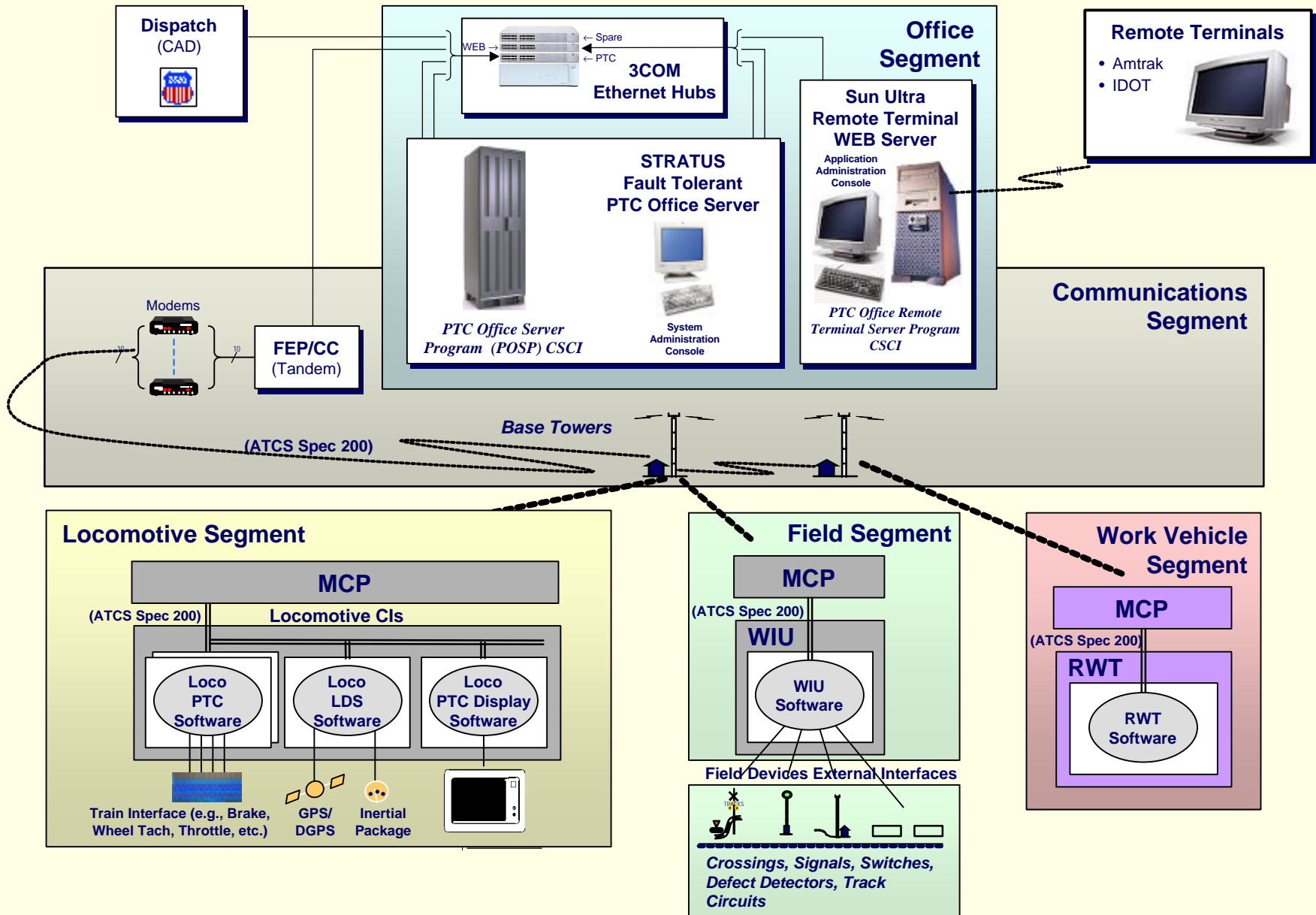
PTC General CONOPS



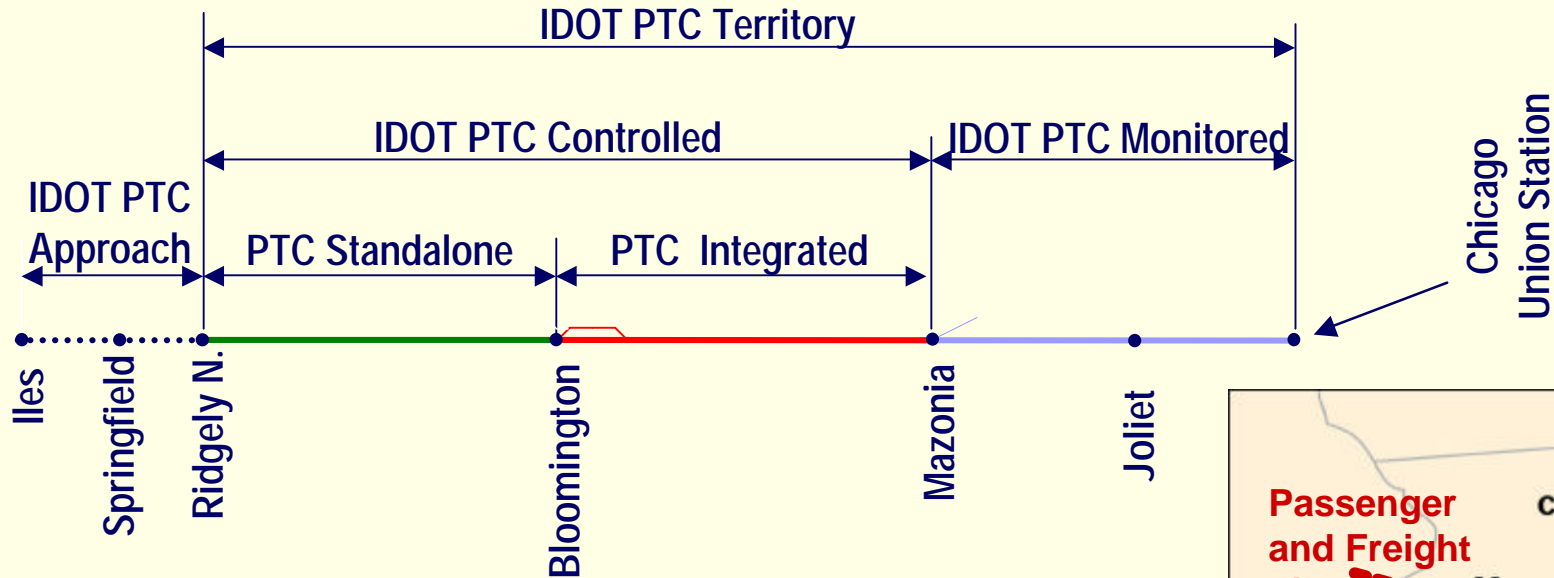
PTC uses Mobile Data Radios and Onboard Location Determination

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IDOT PTC System Design Baseline

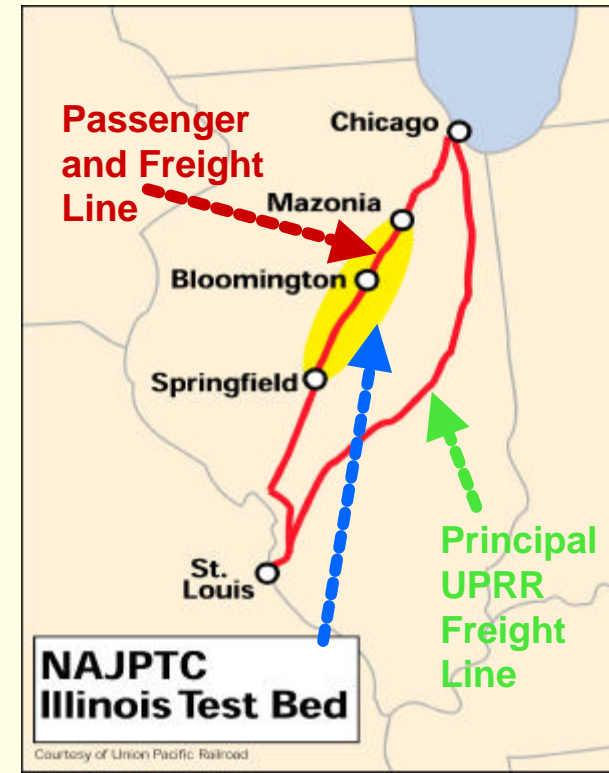


Overview of *IDOT PTC Territory*

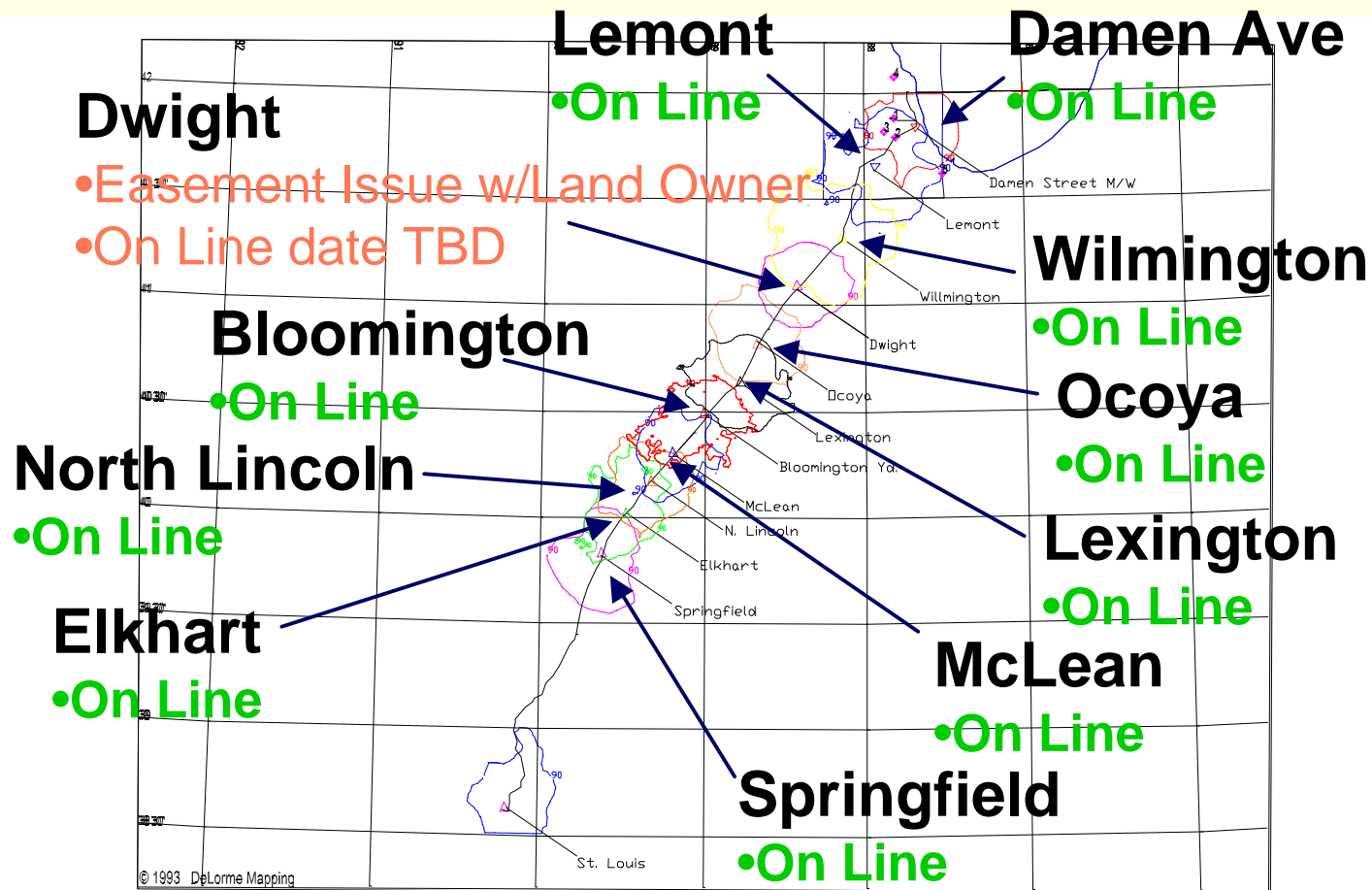


Handle Mixed Traffic ...

- Passenger
- Freight
- Non-Communicating Trains



ATCS Network Construction Status



All locations have the towers, buildings, and radio equipment installed.

A few of the Base Station Sites



Project Progress Update

- **Data Radio Network Operational at nearly all corridor sites**
- **Draft RSPP submitted to FRA**
 - Being revised per FRA comments
- **Build 2 Test Waivers drafted ... undergoing review & edits**
 - Plan to submit to FRA around end of May
- **FRA concurrence on 4-aspect UP cab signal Base Case**
- **Onboard Display Revised per Labor's recommendations**
- **Project Rescheduling underway**
- **Equipment Installation underway**
- **Build 1 Lab Integration and Test underway**
- **Build 1 Field Testing in July/August**

SDI Overview—RSAC Meeting

May 14-15

Colorado Springs, Colorado

Topics Covered

- **Current program highlights**
- **System Integration and Test Status**
- **Safety Program Status**
- **Program Schedule**

SDI Current Program Highlights

- **Successful LDS subsystem testing at TTCI facility**
- **First manufactured locomotive system delivered for test**
- **Onboard equipment installation on Amtrak P-42's underway**
- **75% of WIU's delivered—UP installation prep started**
- **System integration facility at LM fully operational**
- **Integration and test of system components in process**

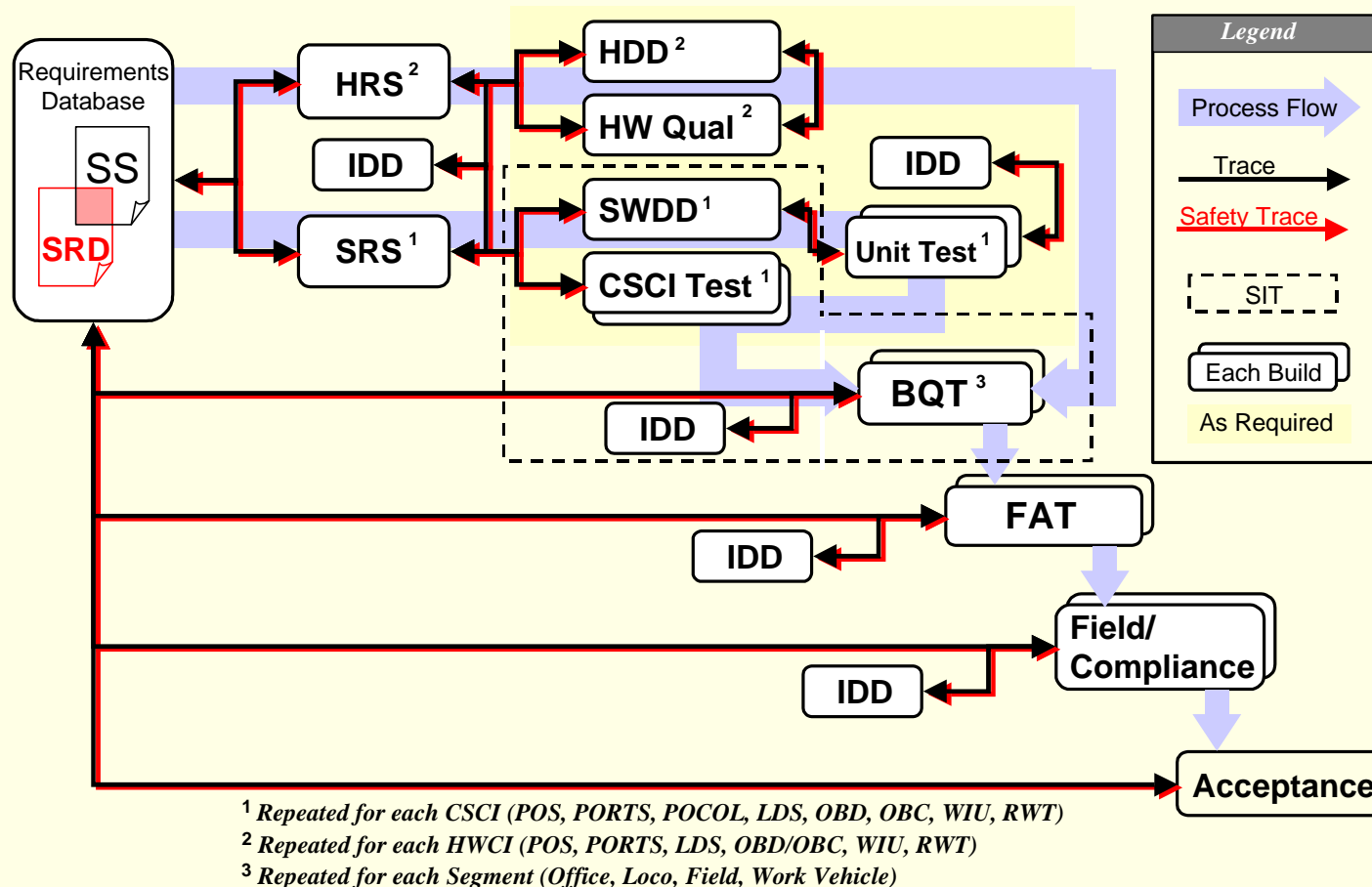
System Test and Integration Status

- **Build 1 Functionality—Location Monitoring**
 - ATCS Spec 200 network connectivity & messaging
 - System initialization
 - Train initialization
 - Location determination
 - Train location display to locomotive crew
 - Route characteristics management
 - System health monitoring
 - Remote train tracking display

System Test and Integration Status - Build 1 (cont)

- **Laboratory Testing**
 - Testing conducted at LM System Integration facility in NY
 - FAT Testing scheduled to start early July
- **Field Testing**
 - Tests scheduled to end in August
- **Field Territory**
 - Prime test area is near Bloomington, MP 103 to MP 126.3

PTC Requirements/Verification Trace Overview



Formal Traceability to Validate Safe Implementation

Safety Accomplishments

- **Safety Focus Group established**
 - Increased Resources, Increased Development Coordination to keep safety and design efforts together

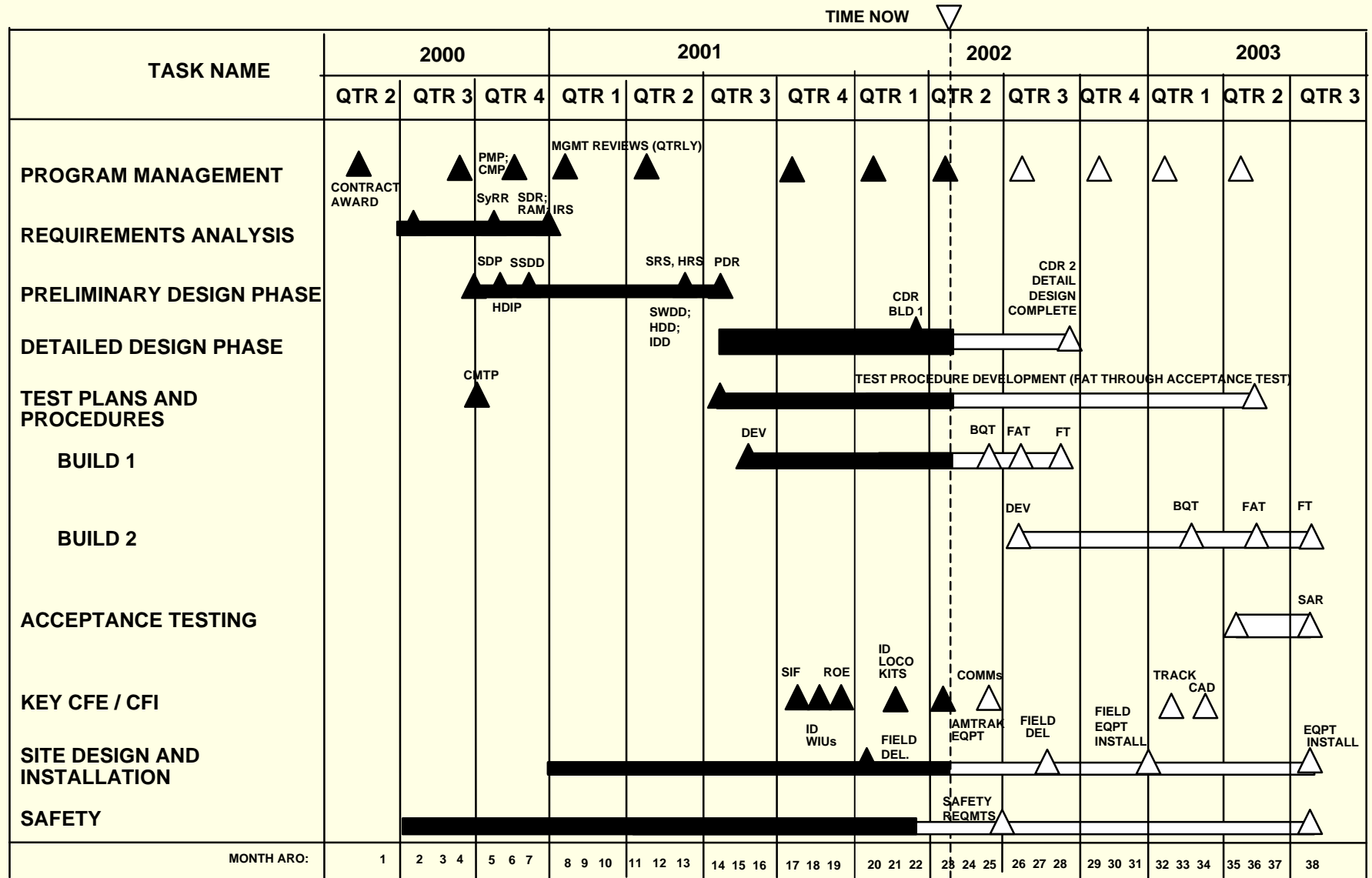
Core Team		Advisors/Associates	
Marty Bogdahn	LM Mitchel Field	Stan Borenstein	LM Mitchel Field
Jim Fenske	Wabtec	Ray Conrad	LM Rockville
Warren Klinck	LM Mitchel Field	Larry Gray	LM Mitchel Field
Dave Levan	DLSF Systems	Gerhard Meyer	LM Mitchel Field
Rich Messer	LM Mitchel Field	Steve Osborne	LM Manassas
Craig Shier	LM Manassas	Dennis Sutherland	Wabtec
		Keith Sutherland	Wabtec
		Dr. C. Mokkaapati	US&S
		Jeff Golowner	LM Mitchel Field
		Dr. Ted Giras	University of Virginia

- **Safety Process documented in Safety Program Plan**
- **Safety documentation submittals to Safety Working Group**

SDI Near-term Safety Milestones

- **Subsystem hazard analyses**
- **Detailed FFTs and implementing safety requirements**
- **Hazard log development**
- **ASCAP base case simulation run in June**
- **Safety Working Group meeting in Omaha**

IDOT PTC Proposed Project Schedule-DRAFT



May 2002

SDI Summary

- **Project making measurable progress with first system testing milestones**
- **Focus on Safety and fulfilling RSAC and NPRM objectives is program driver**